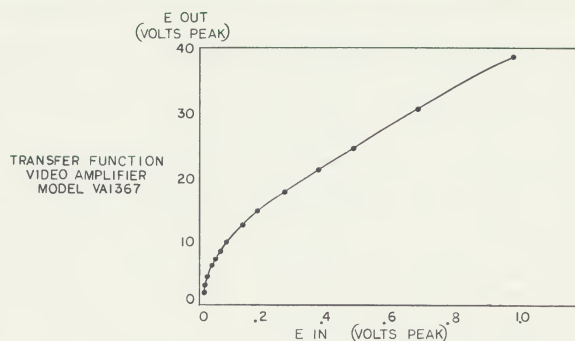




SPECIFICATIONS:

INPUTS

Signal
Amplitude
Impedance
Polarity

1.0 volts maximum
75 ohms or 1K ohm
positive

DC Restorer Level

±100 volts maximum
Note: Do not apply restoring level when using
direct-coupled output.

Power

+20 volts @ 360 ma
-20 volts @ 35 ma
-35 volts @ 140 ma

DC OUTPUT

Amplitude
Impedance
Polarity
Bandwidth (-3 db points)
Output Level

40 volts peak maximum, variable to 10 volts peak
390 ohms
positive-going
DC to 10 mc (into 33 pf)
-33 volts for 0 volts in

AC OUTPUT

Amplitude
Impedance
Polarity
Bandwidth (-3 db points)

40 volts peak maximum, variable to 10 volts peak
390 ohms
positive-going from DC restorer level
50 cps to 10 mc (into 33 pf//1 meg)

TRANSFER FUNCTION

See Curve

OUTPUT NOISE

20 mvp-p maximum

DC RESTORATION

diode

ARC PROTECTION

Amplifier is protected from damage due to arcs
or breakdown internal to CRT.

ADJUSTMENTS

Output DC Level

Screwdriver adjustable potentiometer, R6 (adjust
for -33 VDC out with 0 VDC in)

Output Pulse Overshoot

Adjustable coil available at rear of unit (can
be adjusted for zero to 5% overshoot on fast-
rise pulse into 33 pf output load)

Output Amplitude

Screwdriver adjustable potentiometer, R35, varies
maximum output from 40V peak to 10V peak without
affecting shape of transfer function.

Break Points

Screwdriver adjustable potentiometer, R22 and
R28, adjust two break points to match amplifier
to CRT for optimum gamma correction.

PHYSICAL

Connector
Plug
Receptacle

Elco 00-7022-023-000-001
Elco 00-7008-023-163-001 (supplied with unit)

DIMENSIONS

6 3/4" L x 5" H

MINIMUM SPACING BETWEEN CONNECTORS

.700 inches

WEIGHT

5.7 ounces

MATERIALS

Semiconductors
Resistors
Printed circuit card

silicon
metal film
G-10 glass epoxy

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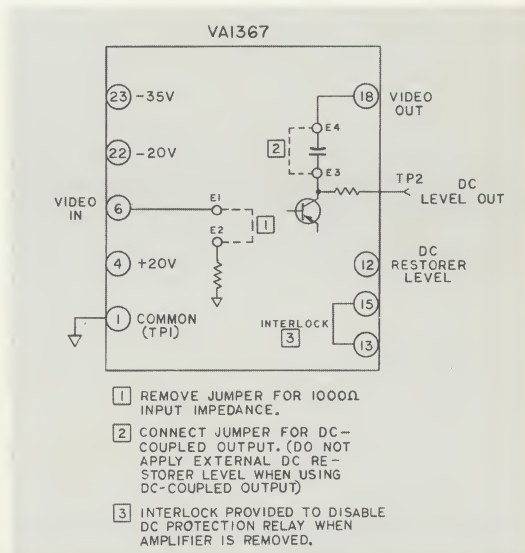
TM

Engineering Data

VIDEO AMPLIFIER

(GAMMA CORRECTED)

Model VA1367



DESCRIPTION:

The Model VA1367 is an all-silicon solid-state unit featuring plug-in convenience and low cost. It is designed for application in any cathode ray tube or storage tube display system requiring a linear relationship between light output and video drive.

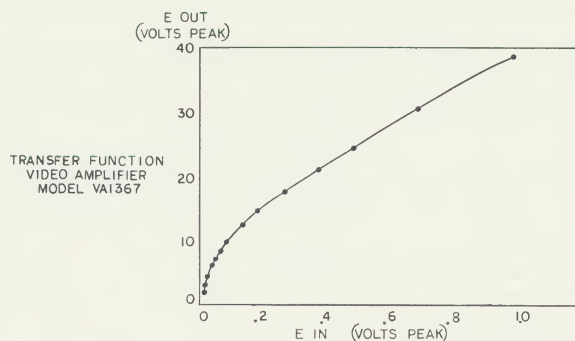
In most cathode ray tubes, beam current and, therefore, light output, is related to grid drive as follows: $I_b = kE_g^\gamma$, where γ equals 2 to 2.5. If the transfer characteristic of the video amplifier is $E_{in} = k'E_g^\gamma$, then $I_b = k''E_{in}$, and light output will be linear with respect to the video input signal. The Model VA1367 uses two diode break points to generate γ approximately equal to 2.2. The break points are adjustable to accommodate CRTs having γ other than 2.2, thereby achieving optimum linearity. An output amplitude control is located after the shaping circuit to accommodate variations in the CRT grid base without affecting the shape of the amplifier's γ -correction characteristic.

The Model VA1367 accepts a positive-going input signal and provides a γ -corrected positive-going output signal which may be direct-coupled to the CRT grid or AC-coupled to an external DC restoring level.

The Model VA1367 employs feedback and temperature-compensation to provide optimum gain stability and temperature independence. The output stage is shunt-peaked for improved output rise time and bandwidth. The amplifier is fully compatible with all other modular display system components manufactured by Beta.

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SPECIFICATIONS:

INPUTS

Signal
Amplitude
Impedance
Polarity

1.0 volts maximum
75 ohms or 1K ohm
positive

DC Restorer Level

±100 volts maximum
Note: Do not apply restoring level when using
direct-coupled output.

Power

+20 volts @ 360 ma
-20 volts @ 35 ma
-35 volts @ 140 ma

DC OUTPUT

Amplitude
Impedance
Polarity
Bandwidth (-3 db points)
Output Level

40 volts peak maximum, variable to 10 volts peak
390 ohms
positive-going
DC to 10 mc (into 33 pf)
-33 volts for 0 volts in

AC OUTPUT

Amplitude
Impedance
Polarity
Bandwidth (-3 db points)

40 volts peak maximum, variable to 10 volts peak
390 ohms
positive-going from DC restorer level
50 cps to 10 mc (into 33 pf//1 meg)

TRANSFER FUNCTION

See Curve

OUTPUT NOISE

20 mvp-p maximum

DC RESTORATION

diode

ARC PROTECTION

Amplifier is protected from damage due to arcs
or breakdown internal to CRT.

ADJUSTMENTS

Output DC Level

Screwdriver adjustable potentiometer, R6 (adjust
for -33 VDC out with 0 VDC in)

Output Pulse Overshoot

Adjustable coil available at rear of unit (can
be adjusted for zero to 5% overshoot on fast-
rise pulse into 33 pf output load)

Output Amplitude

Screwdriver adjustable potentiometer, R35, varies
maximum output from 40V peak to 10V peak without
affecting shape of transfer function.

Break Points

Screwdriver adjustable potentiometer, R22 and
R28, adjust two break points to match amplifier
to CRT for optimum gamma correction.

PHYSICAL

Connector
Plug
Receptacle

Elco 00-7022-023-000-001
Elco 00-7008-023-163-001 (supplied with unit)

DIMENSIONS

6 3/4" L x 5" H

MINIMUM SPACING BETWEEN CONNECTORS

.700 inches

WEIGHT

5.7 ounces

MATERIALS

Semiconductors
Resistors
Printed circuit card

silicon
metal film
G-10 glass epoxy

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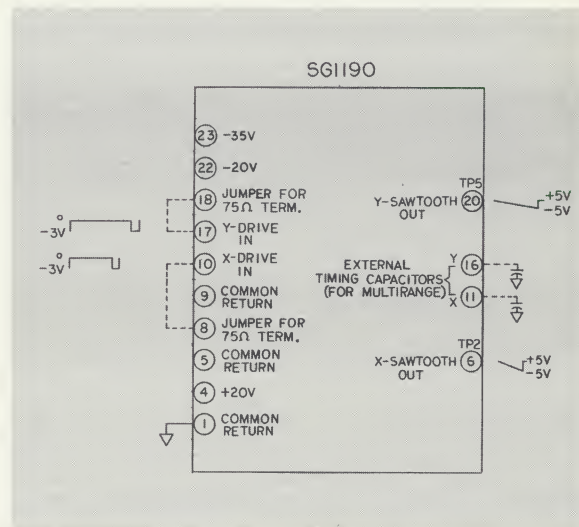
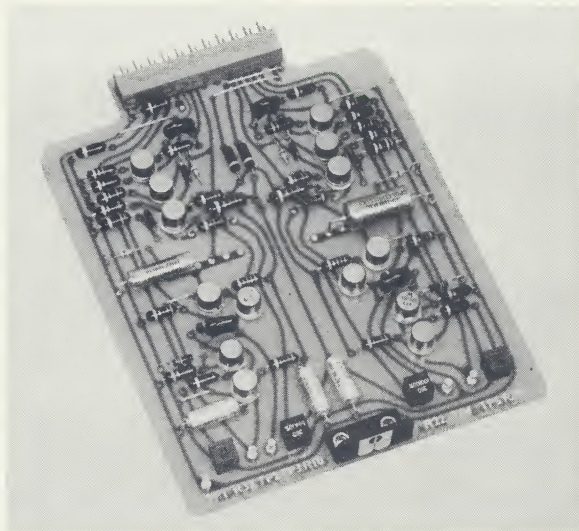


TM

Engineering Data

X-Y SAWTOOTH GENERATOR

Model SG1190



DESCRIPTION:

The Model SG1190 X-Y Sawtooth Generator is an all silicon solid state unit featuring plug-in convenience and low cost. It is designed for application in any cathode ray tube or storage tube deflection or scanning system where a linear sweep signal is desired.

The Model SG1190 comprises two highly stable and linear gated sawtooth generators. Each are dc coupled throughout and offer exceptional slope and position stability despite temperature variations. Screwdriver adjustable potentiometers available at the rear of the module provide for dc level adjustment and a $\pm 50\%$ sawtooth width adjustment. The nominal sawtooth widths must be specified, as desired, anywhere within the specified range.

Provisions are made for the connection of external timing capacitors. This allows each channel of the SG1190 to be used at any number of sawtooth rates simply by connection to a selector switch containing the timing capacitors.

The outputs of the Model SG1190 X-Y Sawtooth Generator are designed to be compatibly coupled to the inputs of the linearity correction circuits or any of the deflection amplifiers manufactured by Beta. These amplifiers are chosen according to the total deflection current required. The unit is also fully compatible with all other modular display systems components manufactured by Beta.

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SPECIFICATIONS:

INPUTS

X AND Y DRIVE

Sawtooth Resting	3 to 5 volts negative
Sawtooth Ramping	0 ± 0.5 volts
Impedance	1.5 K or 75 ohms

POWER

+20 volts @ 100 ma
-20 volts @ 60 ma
-35 volts @ 20 ma

OUTPUTS

X AND Y SAWTOOTH

Amplitude	+5 to -5 volts
Impedance	100 ohms maximum
Width	6 microseconds to 100 milliseconds. (Fixed at nominal sawtooth as desired). See Note 1

ADJUSTMENTS

Width or Amplitude	$\pm 50\%$
X	R10
Y	R22

DC Centering	
X	R33
Y	R38

NONLINEARITY

$\pm 0.1\%$ maximum

FLYBACK TIME

3 microseconds minimum

OPERATING TEMPERATURE

-25°C to $+60^{\circ}\text{C}$

PHYSICAL

CONNECTOR

Plug	Elco 00-7022-023-000-001
Receptacle	Elco 00-7008-023-163-001 (Supplied with unit)
Minimum spacing between connectors	.700 inches

DIMENSIONS

6 3/4 L x 5 W

WEIGHT

6 ounces

MATERIALS

Semiconductors	silicon
Resistors	metal film
Printed circuit card	G-10 glass epoxy
Timing Capacitor	Silvered mica or polystyrene depending upon specified sawtooth width.

NOTE 1: Other sawtooth widths available upon request.

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Advanced Engineering Data
ELECTROSTATIC DEFLECTION AMPLIFIER

Model EDA1504

DESCRIPTION:

The Model EDA1504 Deflection Amplifier is a dual axis, all solid-state direct-coupled amplifier for use with electrostatic deflection cathode ray tubes. The input is single-ended; the output is push-pull centered about a variable DC level of +200 to +300 volts.

The Model EDA1504 utilizes all silicon semiconductors in an operational amplifier feedback configuration for optimum gain stability and linearity. The assembly is packaged around an air-cooled heat sink furnished complete with fan.

SPECIFICATIONS:

INPUTS

AC Power (for fan)	115 volts 15 watts 60 hz
DC Power (total requirement)	+20 volts @ 40 ma -20 volts @ 100 ma +550 volts @ 140 ma -35 volts @ 140 ma
Signal (for maximum output) Amplitude (Note 1) Impedance	±5.0 volts 1.8 Kohms

OUTPUTS

Plate-to-Plate Deflection Voltage	500 volts max (positive or negative)
--------------------------------------	--------------------------------------

SMALL SIGNAL BANDWIDTH

(Note 2)	2.5 mhz
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SLEWING RATE

(Note 3)	100 volts/microsecond
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(specifications continued on reverse)

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CONTROLS

Balance
Output DC Level

DIMENSIONS

6 1/2 L x 7 1/4 W x 6 1/8 H inches

MATERIALS

Semiconductors	silicon
Resistors	metal film
Printed Circuit Cards	G-10 glass epoxy

CONNECTORS

DC Power and Spare Inputs	Barrier Strip
Deflection Input Signals	BNC
Output Signals	Standoff Terminals

Note 1: Input signal may be unbalanced with proper off-set dc bias voltage applied at spare input.

Note 2: Specified at plus or minus 25 volts output.

Note 3: Specified over a maximum output of plus or minus 400 volts plate-to-plate driving an equivalent load of 50pf, each plate-to-ground.

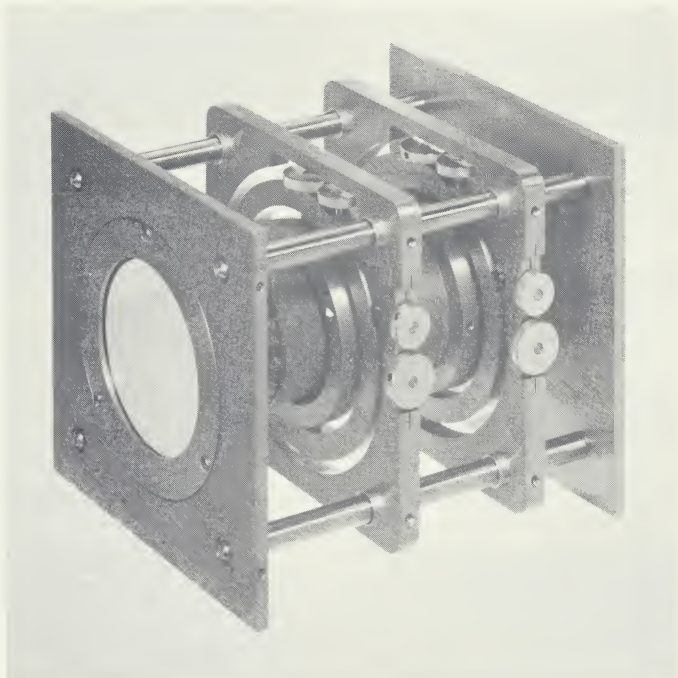


TM

Engineering Data

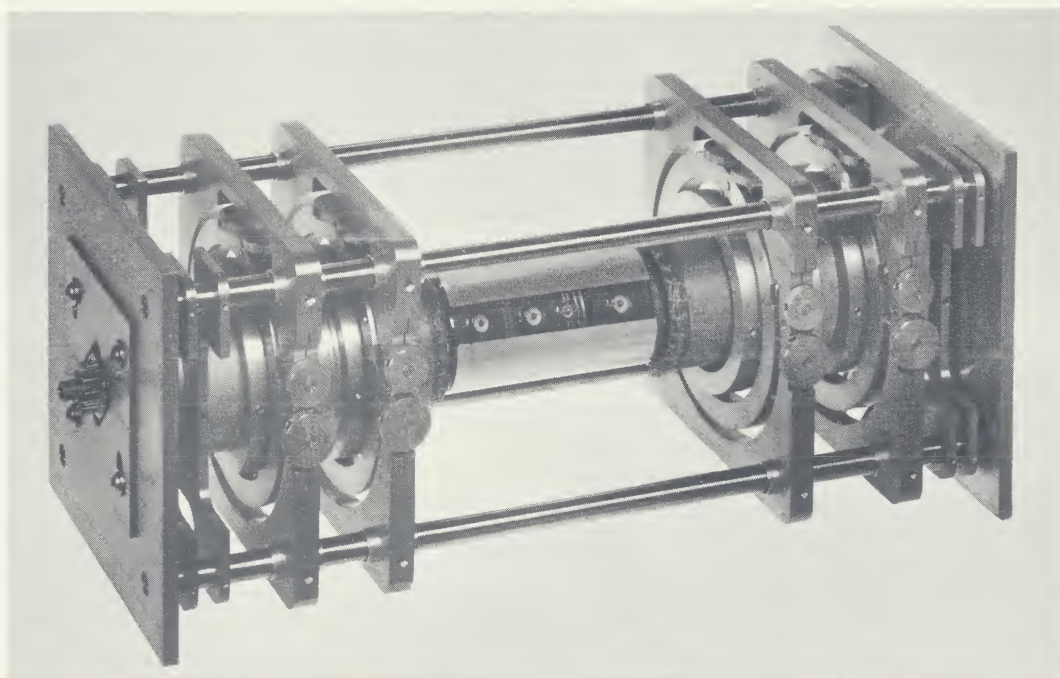
PRECISION TUBE AND COIL MOUNTS

to meet exacting performance requirements



Flexible combinations of standard assemblies for the precision mounting and alignment of:

- cathode ray tubes
- direct view storage tubes
- single-gun recording storage tubes
- dual-gun recording storage tubes



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PRODUCT PRICE LIST

May 15, 1967

<u>MODEL NO.</u>	<u>TITLE</u>	<u>PRICE</u>
<u>CRT System Circuit Modules</u>		
SG1190	X-Y Sawtooth Generator	\$ 260.00
DA341	Deflection Amplifier (± 200 ma) (one axis)	190.00
DA1340	Deflection Amplifier (± 7.5 a) (one axis)	250.00
DA113	X-Y Deflection Amplifier (± 2.5 a)	740.00
DA114	X-Y Deflection Amplifier (± 4.5 a)	980.00
DA115	X-Y Deflection Amplifier (± 8.0 a)	1,555.00
EDA800	Electrostatic Deflection Amplifier (350 volts pos. or neg.) (one axis)	330.00
EDA1504	X-Y Electrostatic Deflection Amplifier (500 volts pos. or neg.)	985.00
DF345	Dynamic Focus Generator	202.00
DF347	Dynamic Focus Output Amplifier	194.00
BA/FR413	Blanking Amplifier and Static Focus Regulator	144.00
FR413	Static Focus Regulator	100.00
BA413	Blanking Amplifier	125.00
PP529	Phosphor Protection Circuit	146.00
VA548	Video Amplifier (10 megacycle)	269.00
VA1367	Video Amplifier (gamma-corrected 10 megacycle)	325.00
VA598	Video Amplifier (30 megacycle)	575.00
VA1377	Video Amplifier (50 megacycle)	675.00
LC916	Linearity Correction Circuit (one axis)	230.00
LC916/918	Linearity Correction Circuit (two axes)	776.00
<u>Tube and Coil Mounts</u>		
CRTM	Basic CRT Mount	\$ 235.00
CRTM-10	Basic Mount for 10 inch CRT	490.00
DSTM	Basic Dual Gun Recording Storage Tube Mount	232.00
MCM	Micropositioning Coil Mount	357.00
FYM	Fixed Yoke Mount (cylindrical yokes)	125.00
FYMS	Fixed Yoke Mount (servo-type mounted yokes)	85.00
CCM	Centering and Alignment Coil Mount	68.00
<u>Accessories</u>		
CRA759	Card Rack Assembly	\$ 195.00
XC468	Extender Card	40.00
MS983	Magnetic Shield (for CRTM)	390.00
MS983-10	Magnetic Shield (for CRTM-10)	440.00
BC1096	Blank Module Card	25.00

- NOTES: 1. Prices listed herein supersede all previously published prices for these items.
 2. Prices subject to change without notice.
 3. Prices: FOB, Newton, Mass. Terms: Net 30 days.
 4. We will be pleased to quote quantity prices for any item shown on this list.

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Beta Instrument Corporation Sales Representatives

<u>Name</u>	<u>Area Covered</u>
Research Instruments, Inc. 235 Bear Hill Road Waltham, Massachusetts 02154 Tel: 617/894-7220	Massachusetts, Rhode Island, Maine, Connecti- cut, New Hampshire, Vermont
Budd-Tronics, Inc. 416 Greenwich Street Bergenfield, New Jersey 07621 Tel: 201/385-5295	Metropolitan New York; Northern New Jersey; Fairfield County, Conn.
Edwin B. Hinck Sales Company 139 Union Street Montclair, New Jersey 07042 Tel: 201/746-2625	Northern New York State
John C. Wolke Sales Associates 139 Union Street Montclair, New Jersey 07042 Tel: 201/746-2625	Delaware; Maryland; Virginia; Eastern Pennsylvania; District of Columbia; Southern New Jersey
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A-F Sales Engineering, Inc. 94 South Los Robles Pasadena, California 91101 Tel: 213/681-5631	Southern California; Arizona; Clark County, Nevada
Manufacturers Marketing Service Corp. 10303 Carry Back Circle Dallas, Texas 75229 Tel: 214/357-6893	Texas; Oklahoma; Louisiana
Manufacturers Marketing Service Corp. 6306 Schevers Street Houston, Texas 77017 Tel: 713/645-3581	Texas; Oklahoma; Louisiana
Ashby Associates, Inc. 4130 Linden Avenue Dayton, Ohio 45402 Tel: 513/252-5627	Indiana; Kentucky; Michigan; Ohio; Western Pennsylvania; West Virginia

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